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APPLICATION NUMBER: 10/966,011

FILING DATE: *October 15, 2004*

RELATED PCT APPLICATION NUMBER: PCT/US05/01271



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October 15, 2004

Commissioner for Patents
P.O. Box 1450
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Inventor(s):

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Title:

Magnetic Construction Modules for Creating
Three-Dimensional Assemblies

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10/966011



Sir:

Enclosed herewith please find the following documents in the above-identified application for Letters Patent of the United States:

1 Pages of Abstract
12 Pages of Specification
20 Number of Claims
4 Sheets of Drawings
1 Return-addressed Postcard
1 Express Mail Certification (Stapled to this Letter)
1 Declaration and Power of Attorney (unexecuted)

Basic Fee	\$ 790.00
Additional Fees:	

Total number of claims (including multiple dependent claims) <u>20</u>	
Total number of claims in excess of 20, times \$18.00	\$ 0.00
Number of independent claims <u>3</u>	
Number of independent claims minus 3, times \$88.00	\$ 0.00
Fee for multiple dependent claims (\$300.00)	\$ 0.00

TOTAL FILING FEES: \$ 790.00

Priority date for the United States Provisional Application Serial No. 60/536,866, filed January 16, 2004, is claimed under 35 U.S.C. § 119 (e).

Please note that this application is being filed without an applicant's executed Declaration. Please charge Deposit Account No. 501402 in the amount of \$790.00 to cover the fees associated with this filing. The Commissioner is also authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 501402. Duplicate copies of this letter are enclosed for such purposes. Pursuant to 37 C.F.R. 1.53, the United States Patent and Trademark Office is respectfully requested to accept this application and accord a serial number and filing date as of the date that this application is deposited with the U.S. Postal Service for Express Mail. Further, it is respectfully requested that the NOTICE OF MISSING PARTS-FILING DATE GRANTED pursuant to 37 C.F.R. 1.53(f) be sent to the undersigned attorney.

Respectfully submitted,

McCARTER & ENGLISH, LLP


Ralph W. Selitto, Jr.
Reg. No. 26,996

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of
CHARLES J. KOWALSKI, ET AL.

Serial No.: TO BE ASSIGNED

Filed: FILED HEREWITH

For: MAGNETIC CONSTRUCTION MODULES
FOR CREATING THREE-DIMENSIONAL
ASSEMBLIES

X

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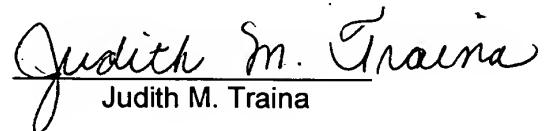
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I hereby certify that this paper and/or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



Judith M. Traina

**MAGNETIC CONSTRUCTION MODULES
FOR CREATING THREE-DIMENSIONAL ASSEMBLIES**

5

Cross-Reference to Related Priority Application

This patent application claims priority of U.S. Provisional Application Serial No. 60/536,866, filed January 16, 2004, and entitled "Magnetic Construction Modules For Creating Three-Dimensional Assemblies", the disclosure of which is incorporated herein by reference in its entirety.

Field of the Invention

The present invention is directed generally to puzzles and toys. More particularly, the present invention is directed to structural components having magnetic surfaces and which can be magnetically and/or mechanically coupled to form three-dimensional assemblies.

Background of the Invention

Individuals often find enjoyment in the challenge of building aesthetic structural designs and/or functional structural models. Frequently, the utility associated with constructing such structures is found in the creative and/or problem solving process required to achieve a desired structural objective. Currently, construction assemblies that exploit magnetic properties to interlink various structural components and thereby form different two and/or three dimensional structures are known and can provide an added dimension of sophistication to the construction process. For example, the magnetic construction toy disclosed in Balanchi U.S. Patent No. 6,626,727, the modular assemblies disclosed in Vicentielli U.S. Patent No. 6,566,992,

and the magnetic puzzle/toy disclosed in Smith U.S. Patent No. 5,411,262. In particular, German Patent No. DE 202 02 183 U1 to Kretzschmar describes flat triangles, squares and rectangles used in conjunction with ferromagnetic balls to create a limited range of geometric constructions. The flat shapes disclosed in the Kretzschmar German Patent consist of magnets 5 inserted in the corners of a triangular or square piece, or six magnets in a rectangular plate which can be attached to steel balls to create a limited number of three-dimensional shapes.

A significant shortcoming associated with each of the above-noted magnetic construction assemblies involves the inherently restrictive and at times penalizing design alternatives provided thereby. It is often the case, as noted with particular respect to the German '183 Patent, 10 that these traditional magnetic construction assemblies have only a limited number of component parts, which parts typically have constrained geometries to ensure effective and suitably stable or secure connections. Thus, despite efforts to date, a need remains for a magnetic construction assembly that provides greater construction flexibility and/or design choice.

This and other needs/objectives are addressed by the present invention. Additional 15 advantageous features and functionalities of the present invention will be apparent from the disclosure which follows, particularly when reviewed in conjunction with the accompanying drawings.

Summary of the Invention

According to the present invention, structural components may be utilized to permit construction of a wide variety of structural profiles thereby increasing construction flexibility and/or design choice. The structural components of the present invention each include a number of 5 magnets operatively associated with a periphery thereof to provide a number of points of magnetic connection. In addition, each structural component has at least one mechanical connector operatively associated therewith to provide at least one point of mechanical connection.

The present invention advantageously allows for two or more complementary structural components to be operatively connected via magnetic or mechanical connections to 10 form a variety of different two or three-dimensional structural profiles of varying complexities. The present invention is advantageously suitable to magnetically cooperate with one or more ferromagnetic structures to provide even greater design and construction flexibility.

Brief Description of the Drawings

15 For a better understanding of the present invention, reference is made to the following detailed description of various exemplary embodiments considered in conjunction with the accompanying drawings, in which:

FIG. 1a is an elevational view of a structural component in accordance with one exemplary embodiment of the present invention;

20 FIG. 1b is a top plan view of the structural component of FIG. 1a;

FIG. 2a is an elevational view of a structural component in accordance with another exemplary embodiment of the present invention;

FIG. 2b is a top plan view of the structural component of FIG. 2a;

FIG. 3a is an elevational view of a structural component in accordance with still another exemplary embodiment of the present invention;

5 FIG. 3b is a cross-sectional elevational view similar to FIG. 3a showing a structural component constructed in accordance with another exemplary embodiment of the present invention;

FIG. 3c is a top plan view of the structural component of FIG. 3a;

FIG. 4 is a perspective view of two interconnected structural components in accordance with an illustrative embodiment of the present invention;

10 FIG. 5 is a perspective view of an exemplary construction profile in accordance with an illustrative embodiment of the present invention;

FIG. 6 is a perspective view of an exemplary construction profile in accordance with another illustrative embodiment of the present invention;

FIG. 7 is a perspective view of an exemplary construction profile in accordance with still another illustrative embodiment of the present invention; and

15 FIG. 8 is a perspective view of an exemplary construction profile in accordance with a further illustrative embodiment of the present invention.

Disclosure of the Invention

Referring to the drawings and, in particular, FIGS. 1a and 1b, a magnetic structural component in accordance with a preferred embodiment of the present invention is shown and generally represented by reference numeral 10. As shown, the structural component 10 has a substantially square body 11 with two faces 12, 14 operatively associated with four edges 16, 18, 20, 22 and four corners 24a, 24b, 24c, 24d. The body 11 preferably has a predefined thickness

“T” and at least one of the four edges 16, 18, 20, 22 has at least one mechanical connecting element 23 operatively associated therewith.

The mechanical connecting element 23, in a preferred embodiment of the present invention, is a slot 34 located at the midpoint of the edge 20 with a predefined width “W”. The predefined width “W” is preferably equal to or slightly greater than the thickness “T” of the structural component 10. The slot 34 preferably also has a predefined depth “D” extending in a direction at least substantially parallel to the edges 18, 22, preferably to half of the distance between the edge 20 and the edge 16.

The corners 24a, 24b, 24c, 24d are preferably biased at about 45 degrees and have at least one magnet 26a, 26b, 26c, 26d, respectively, operatively associated therewith. The magnets 26a, 26b, 26c, 26d are inserted permanently in each corner 24a, 24b, 24c, 24d of the structural component 10 with a surface 28a, 28b, 28c, 28d of each magnet exposed. The magnets 26a, 26b, 26c, 26d are preferably oriented so that the exposed surfaces 28a, 28b, 28c, 28d in adjacent corners (e.g., corners 24a and 24b) have opposite polarities to each other, indicated in FIG.1a as N for north and S for south.

The structural component 10 may be fabricated from a solid plate 30 with pockets 32a, 32b, 32c, 32d in the respective corners 24a, 24b, 24c, 24d, formed by molding or drilling the pockets 32a, 32b, 32c, 32d into the solid plate 30, or by some other method known in the art. Each pocket 32a, 32b, 32c, 32d preferably has a size and shape so that the corresponding magnet 26a, 26b, 26c, 26d can be inserted permanently into the respective pocket 32a, 32b, 32c, 32d. Each magnet 26a, 26b, 26c, 26d and its corresponding pocket 32a, 32b, 32c, 32d may be cylindrical, rectangular, or have some other shape, depending on the magnetic and/or mechanical connection type desired. As shown, the pockets 32a, 32b, 32c, 32d may be suitable to accommodate each magnet 26a, 26b,

26c, 26d so that the exposed surfaces 28a, 28b, 28c, 28d thereof are either flush or recessed with respect to the respective corners 24a, 24b, 24c, 24d in order to facilitate different connection characteristics. For instance, exposed surface 28a, as shown, is flush with respect to corner 24a, exposed surfaces 28b and 28d, as shown, are substantially recessed relative to the respective corners 5 24b and 24d, and exposed surface 28c, as shown, is only slightly recessed with respect to corner 24c.

By way of further illustration, the magnets 26a, 26b, 26c, 26d can be recessed in pockets 32a, 32b, 32c, 32d so that a beveled edge is formed enabling a connecting element (e.g., a ferromagnetic ball) to be both magnetically and mechanically connected to the module. Thus, by utilizing inherent magnetic and mechanical connecting properties, this magnetic/mechanical 10 connection arrangement, as well as other similar arrangements, may advantageously provide for greater connection stability or performance (see, for example, applicants' copending U.S. Patent Application filed concurrently herewith and entitled "Magnetic Construction Module With Interchangeable Magnet Holders," the disclosure of which is incorporated herein by reference in its entirety.

15 Referring to FIGS. 2a and 2b, a structural component 10', in another embodiment of the present invention, is shown with a substantially triangular body 11'. In FIGS. 2a and 2b, elements corresponding to those of structural component 10 are indicated by like reference numerals with a prime symbol associated therewith. The triangular body 11' has two faces 12', 14' operatively associated with three edges 16', 18', 20' and three corners 24a', 24b', 24c'. The 20 body 11' preferably has a predefined thickness "T" and at least one of the three edges 16', 18', 20' has at least one mechanical connecting element 23' operatively associated therewith.

The mechanical connecting element 23', in this embodiment of the present invention, is likewise a slot 34' located at the midpoint of the edge 20' so as to be diametrically

opposite to the magnet 26b'. The slot 34' has a predefined width "W" preferably equal to or slightly greater than the thickness "T" of the structural component 10'. The slot 34' preferably also has a predefined depth "D" extending in a direction at least substantially perpendicular to the edge 20', preferably to half of the distance between the edge 20' and the edge 16'.

5 The each corner 24a', 24b', 24c' is preferably biased at about 60 degrees and has at least one magnet 26a', 26b', 26c' operatively associated therewith. The magnets 26a', 26b', 26c' are preferably inserted permanently in each corner 24a', 24b', 24c' of the structural component 10' with a surface 28a', 28b', 28c' of each magnet exposed. The magnets 26a', 26b', 26c' are preferably oriented so that the exposed surfaces 28a', 28b', 28c' in adjacent corners 10 (e.g., corners 26a' and 26b') have opposite polarities to each other, indicated in FIG.2a as N for north and S for south.

15 The structural component 10' can be fabricated from a solid plate 30' with pockets 32a', 32b', 32c' located in the respective corners 24a', 24b', 24c'. The pockets 32a', 32b', 32c' can be formed by molding or drilling the pockets 32a', 32b', 32c' into the solid plate 30', or by some other method known in the art. Each pocket 32a', 32b', 32c' preferably has a size and shape so that the corresponding magnet 26a', 26b', 26c' can be inserted permanently into the respective pocket 32a', 32b', 32c'. Each magnet 26a', 26b', 26c' and its corresponding pocket 32a', 32b', 32c' may be cylindrical, rectangular, or have any other shape desired. Each of the pockets 32a', 32b', 32c', as shown, may be suitable to accommodate a magnet 26a', 26b', 26c' so that the exposed surfaces 28a', 28b', 28c' thereof may be either flush or recessed with respect to the respective corners 24a', 24b', 24c' so as to effectuate an improved connection via both mechanical and magnetic connection properties.

Referring to FIGS. 3a through 3c, a structural component 10", in another embodiment of the present invention, is shown with a body 11" substantially similar to that of body 11. In FIGS. 3a through 3c elements corresponding to those of structural component 10 are indicated by like reference numerals with a double prime symbol associated therewith. In this embodiment of the present invention, two identically shaped members, such as member 38" of FIG. 3b, are preferably joined to form a hollow structural component 10" having a similar arrangement of elements to the structural component 10. Each member 38" preferably has half-pockets 40a", 40b", 40c", 40d", 40e", 40f", a slot 42" and a raised edge 44" integrally formed therein. The raised edge 44" generally runs along the perimeters of the member 38" and the slot 42", except where it defines the half-pockets 40a", 40b", 40c", 40d", 40e", 40f". The two members 38" may be joined by glue or by welding along their respective raised edges 44", forming the hollow structural component 10" having a central compartment 41". The half-pockets 40a", 40b", 40c", 40d", 40e", 40f" on one member 38" are aligned with and joined to the corresponding and complementary half pockets of a mirror image member to form pockets 32a", 32b", 32c", 32d", 32e", 32f" for insertion of the respective magnets 26a", 26b", 26c", 26d", 26e", 26f". An object, such as a label or decoration, may be placed within the compartment 41" of the hollow structural component 10" to enhance its appearance. The two at least substantially identical members 38" may be formed in different colors or of different materials.

In other embodiments of the present invention, additional magnets may be operatively associated with the structural component 10, 10', 10". For instance, as shown in Figs. 3a and 3b, a magnet 26e" can be inserted permanently at the midpoint of an edge (e.g., edge 16", edge 18", and edge 22") so that one surface 28e" thereof is exposed. The exposed

surface 28e" may have either polarity N or polarity S. Further, a magnet (not shown) can be operatively associated with mechanical connecting element 23" (e.g., slot 34").

Having identified and described various embodiments of the present invention, in use, two or more structural components 10, 10', 10" can be magnetically and/or mechanically 5 interconnected to form any of a variety of construction profiles. For example, as shown in FIG. 4, two structural components (e.g., component 10 and component 10") may be mechanically connected by interlocking their respective slots 34, 34" to form a three-dimensional cruciform assembly 50. In FIG. 4, corresponding elements of each structural component 10, 10" have the same reference numerals, with the elements of structural component 10" being differentiated 10 from those of structural component 10 by use of a double prime symbol. With the foregoing explanatory comments in mind, each of the slots 34, 34" of the structural components 10, 10" slides completely over the faces 12, 14, 12", 14" of the other structural component 10, 10" to create a cruciform assembly 50, in which the faces 12, 14" of the two structural components 10, 10" are oriented at least substantially 90 degrees to each other. The edge 16 of the structural 15 component 10 preferably is flush with the edge 20". Similarly, the edge 16" of the structural component 10" preferably is flush with the edge 20 of the structural component 10. The magnetic surfaces 28e, 28e" of the respective structural components 10, 10" are diametrically opposed to each other on the cruciform assembly 50.

Referring to FIGS. 5-8, a wide variety of assembled structures, ranging from the 20 simple to the extremely complex, can be created by the imaginative user by combining cruciform assemblies 50, structural components 10, 10', 10" and/or ferromagnetic balls 46. The structural components 10, 10', 10" can also be combined with the wheel-like components disclosed in applicants' copending U.S. Patent Application filed concurrently herewith and entitled

“Magnetic Construction Kit With Wheel-Like Components,” the disclosure of which is incorporated herein by reference in its entirety.

Referring to FIG. 5, an illustrative construction profile 55 may be formed by joining two cruciform assemblies 50, 50” as shown. The cruciform assemblies 50, 50”, may 5 preferably be joined at the magnetic surface 28e of the cruciform assembly 50 and the magnetic surface 28e” of the cruciform assembly 50”, both magnetic surfaces 28, 28e” being hidden in FIG. 5 by the cruciform assemblies 50, 50”. The orientation of the cruciform assemblies 50, 50” with respect to each other is maintained by the magnetic attraction of their respective corner magnets where the two cruciform assemblies 50, 50” adjoin each other (e.g., magnet 26c of 10 assembly 50 and magnet 26d” of assembly 50” are attracted to each other and magnet 26d of assembly 50 and assembly 26c” of assembly 50” are attracted to each other).

Referring to FIG. 6, another illustrative construction profile 60 may be formed by joining the structural component 10”, for instance, to the cruciform assembly 50. The slot 34” of the structural component 10” preferably engages the cruciform assembly 50 as shown and the 15 structural component 10” may preferably be held in place via a magnetic attraction, such as, for example, between the corner magnet 26b” of structural component 10” and the corner magnet 26c of cruciform assembly 50 and between the corner magnet 26c” of structural component 10” and the corner magnet 26b of cruciform assembly 50, both magnet 26c” and magnet 26b being hidden in FIG. 6.

20 Referring to FIG. 7, a further illustrative construction profile 70 may be formed by attaching two cruciform assemblies 50, 50”, for instance, via magnetic attraction between the corner magnet 26d of assembly 50 and the corner magnet 26a” of assembly 50” and between the corner magnet 26c of assembly 50 and the corner magnet 26b” of assembly 50” (corner magnets

26c and 26b" are hidden in FIG. 7). The ferromagnetic balls 46, as shown, may be joined to corner magnet 26a of cruciform assembly 50 and/or, for example, to the end magnet 26e" of the structural component 10" as desired. Also, both magnet 26a and magnet 26e" being hidden in FIG. 7, can be used as connectors to other structural components or cruciform assemblies as 5 desired. For example, as shown, a structural component 10 may be mechanically connected to the crucifix assembly 50 via slot 34.

Referring to FIG. 8, an illustrative rotatable construction profile 80 can be created, for example, by magnetically connecting ferromagnetic balls 46 to magnets 26e, 26e"" operatively associated at opposite ends of the construction profile 55 of FIG. 5 (i.e., magnets 26e, 10 26e"" being hidden in FIG. 8). The construction profile 80 can be made to rotate freely while the ferromagnetic balls 46 are held stationary. For example, magnetic attraction/repulsion from nearby magnets can be used in conjunction with the rotating construction profile 80 to create a motor.

Although the invention disclosed herein has been described with reference to 15 particular embodiments, it is to be understood that these embodiments are merely illustrative of the principles and applications of the present invention. It is therefore to be understood that numerous modifications may be made to the illustrative embodiments and that other arrangements may be devised without departing from the spirit and scope of the invention. For example, the planar structural components may be made in other rectangular shapes than a 20 square, or in shapes having a number of corners other than four, such as triangular or hexagonal shapes. The slots may be formed so as to open at a corner of a planar structural component and extend inward at an angle to one or more edges of the structural component. The shape of the slot itself may be formed so that the planar surfaces of two interlocked structural components are

oriented at some angle other than 90 degrees. In addition, the faces, edges and/or corners may be provided with any of a variety of textures and/or surface structures in order to effectuate construction of secure, stable structural profiles.

WHAT IS CLAIMED IS:

1. A magnetic structural component comprising:

5 a square body having at least substantially planar faces, edges and corners, wherein at least one of said edges has at least one mechanical connector operatively associated therewith, and wherein each of said corners has a magnet operatively associated therewith.

10 2. The magnetic structural component of claim 1, wherein said mechanical connector is a slot.

15 3. The magnetic structural component of claim 2, wherein said slot is dimensioned to operatively accommodate a complementary structural component.

4. The magnetic structural component of claim 1, wherein each magnet is fixedly disposed in a pocket suitable to permanently retain such magnet.

20 5. The magnetic structural component of claim 1, wherein said body is a solid structure.

6. The magnetic structural component of claim 1, wherein said body is a composite hollow structure of two substantially planar members joined via respective raised edges.

25 7. The magnetic structural component of claim 1, further comprising a magnet operatively associated with at least one of said edges.

8. A magnetic structural component comprising:
a body having planar faces, edges and corners;
first connecting means operatively associated with at least one of said edges; and
5 second connecting means operatively associated with at least one of said corners.

9. The magnetic structural component of claim 8, wherein said first connecting means is at least one slot and said second connecting means is at least one magnet.

10 10. A magnetic construction assembly comprising:
a first magnetic structural component and a second magnetic structural component,
each having a body with planar faces, edges and corners, at least one of said edges having
mechanical connecting means operatively associated therewith and each of said corners having a
magnetic connecting means operatively associated therewith,
15 wherein said first and second magnetic structural components are mechanically
connectable via said respective mechanical connecting means and magnetically connectable via said
respective magnetic connecting means.

11. The magnetic construction assembly of claim 10, wherein said mechanical connecting
20 means of said first magnetic structural component is a first slot of a first predefined width and said
mechanical connecting means of said second magnetic structural component is a second slot of a
second predefined width.

12. The magnetic construction assembly of claim 11, wherein said body of each said first and second magnetic structural component is an at least substantially planar plate of predefined thickness.

5 13. The magnetic construction assembly of claim 12, wherein said predefined thickness is the same or slightly less than said first and second predefined widths.

10 14. The magnetic construction assembly of claim 13, wherein said first and second magnetic structural components are mechanically connectable by engaging said respective first and second slots thereof to form a first construction profile whereby said first and second magnetic structural components are axially aligned and oriented at a predetermined angle with respect to each other.

15. The magnetic construction assembly of claim 14, wherein said first construction profile is magnetically connectable to at least one other first construction profile via said magnetic connecting means to form one or more second construction profiles.

20 16. The magnetic construction assembly of claim 15, wherein said magnetic connecting means is at least one magnet permanently affixed at each said corner.

17. The magnetic construction assembly of claim 15, wherein a number of said first construction profiles are connectable so as to be axially aligned.

18. The magnetic construction assembly of claim 15, further comprising one or more ferromagnetic connecting elements.

19. The magnetic construction assembly of claim 17, further comprising two or more
5 ferromagnetic connecting elements magnetically connected to a predefined construction profile so as to enable such construction profiles to rotate.

20. The magnetic construction assembly of claim 18, wherein said ferromagnetic connecting elements are spherical and said at least one magnet is recessed with respect to said corner
10 so as to create at least three connection points between said ferromagnetic connecting element and said first or second magnetic structural component.

Abstract of the Disclosure

Magnetic structural components utilized to permit construction of a wide variety of structural profiles and to thereby increase design and/or construction flexibility and choice.

- 5 The structural components each include a number of magnets operatively associated with a periphery thereof to provide a number of points of magnetic connection. In addition, each structural component has at least one mechanical connector operatively associated therewith to provide at least one point of mechanical connection. The structural components can be magnetically and/or mechanically interconnected to form a variety of different two or three-
- 10 dimensional structural profiles of varying complexities.

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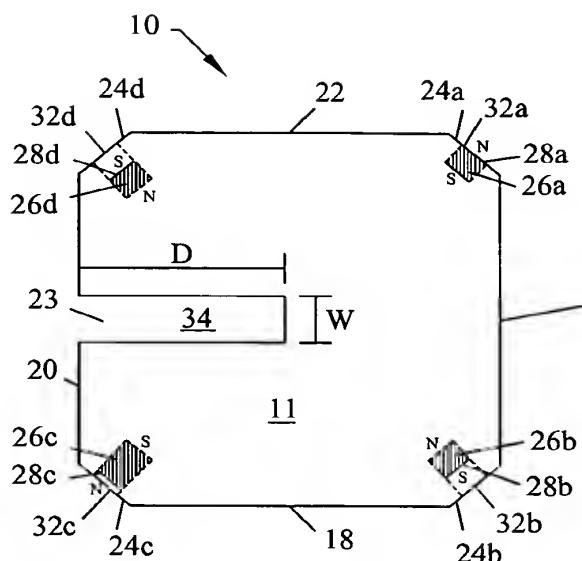


FIG. 1a

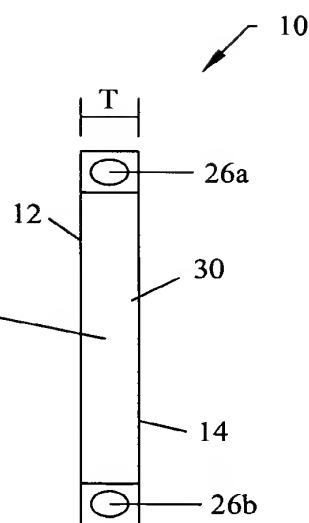


FIG. 1b

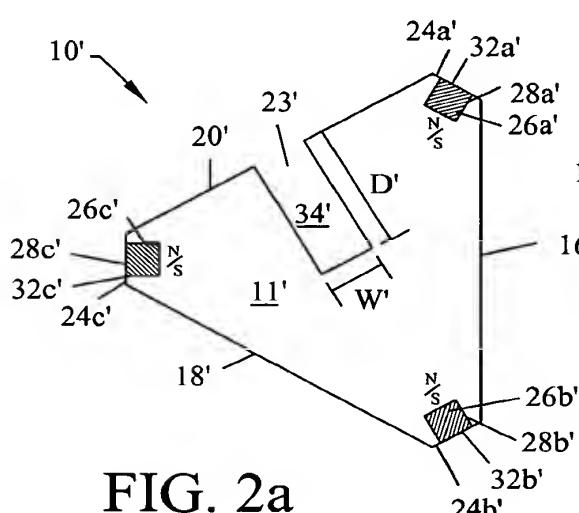


FIG. 2a

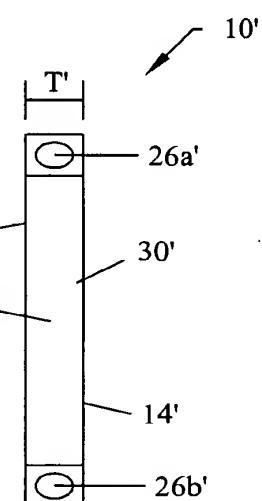


FIG. 2b

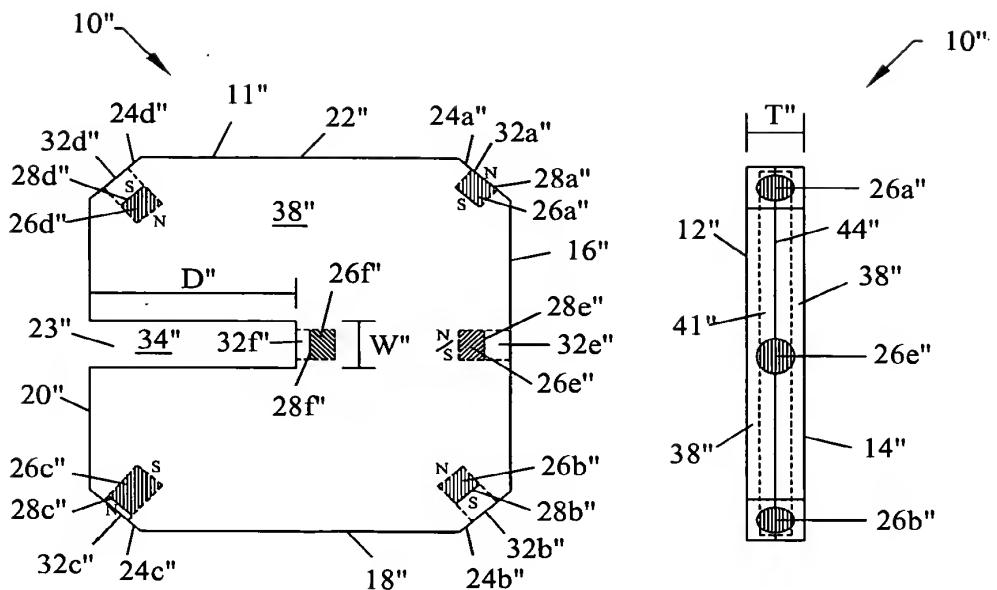


FIG. 3a

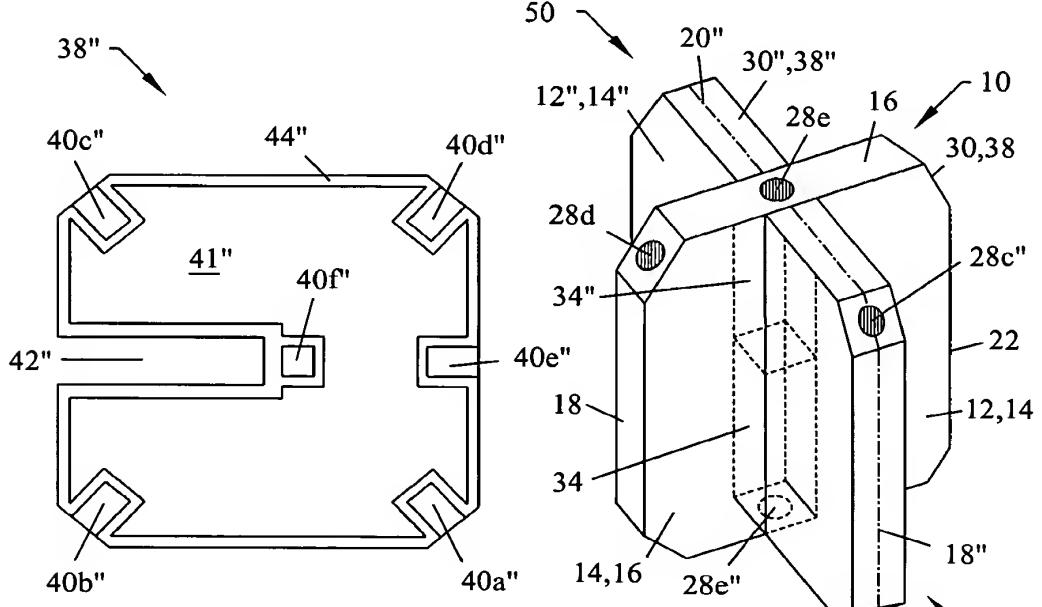
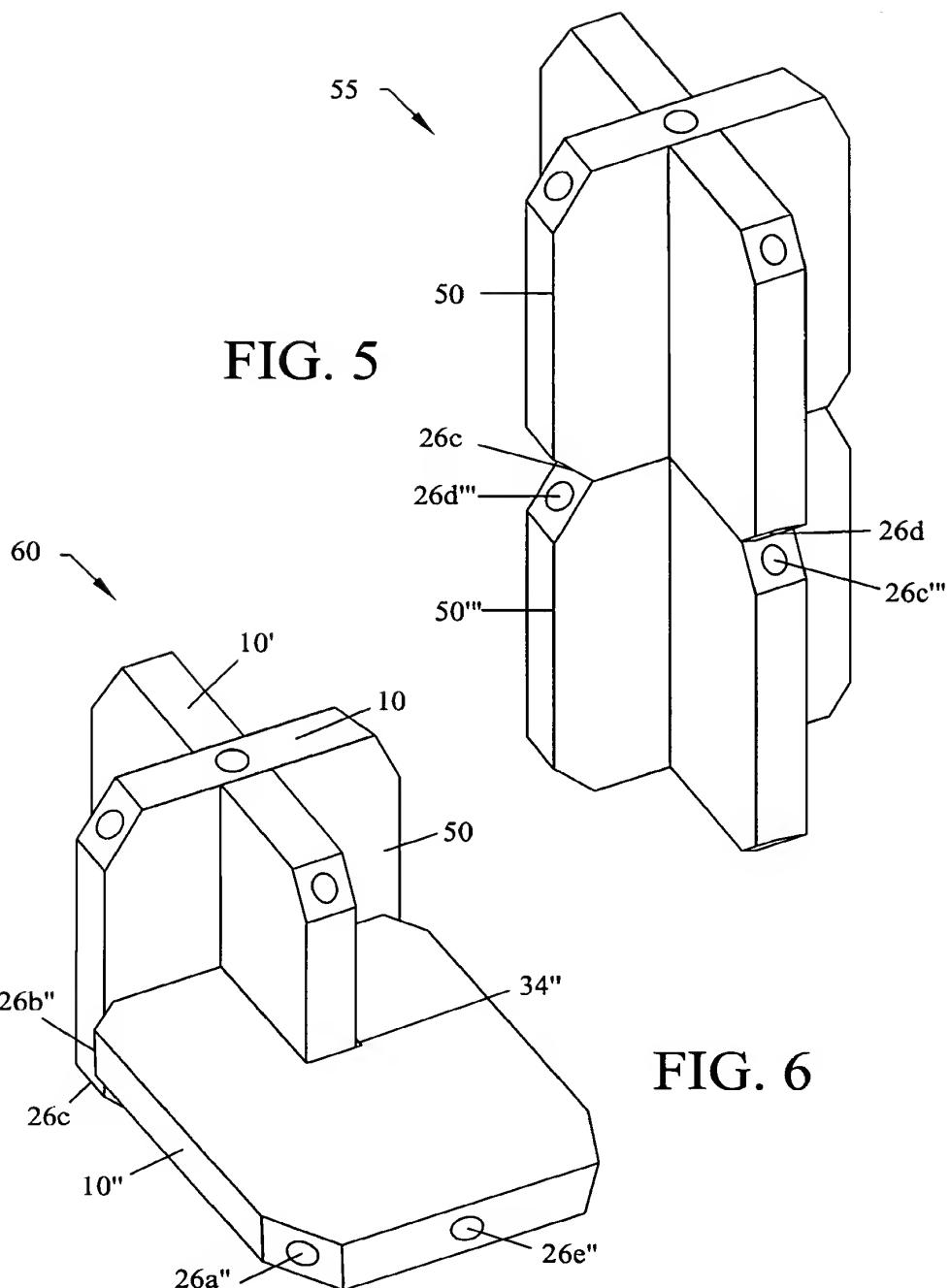


FIG. 3b

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4/4

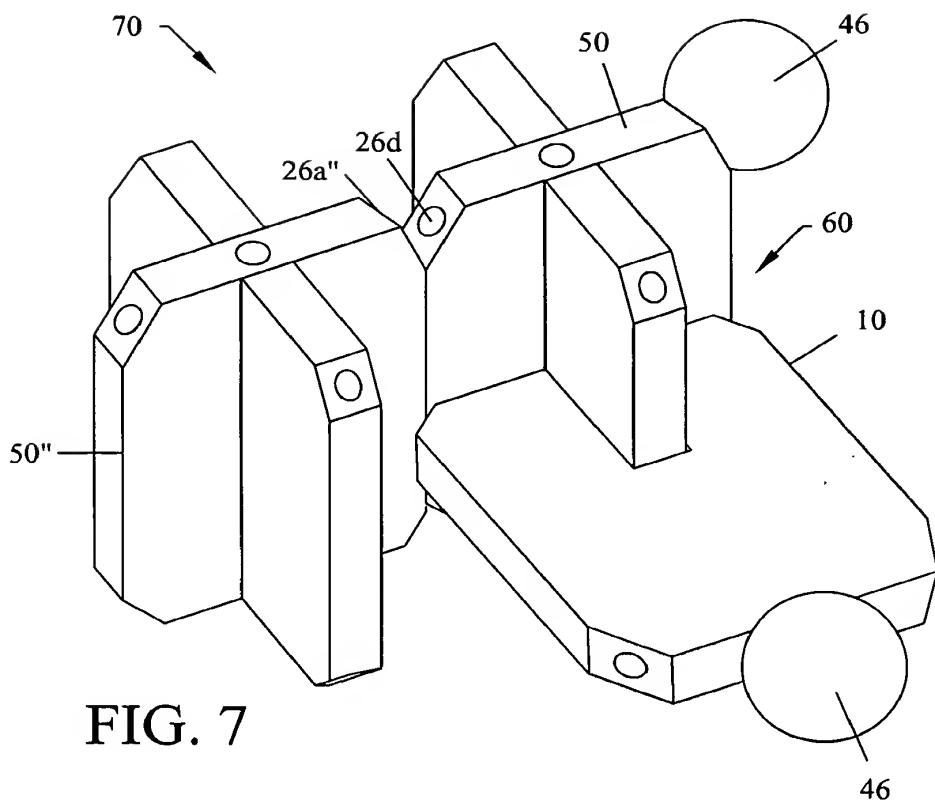


FIG. 7

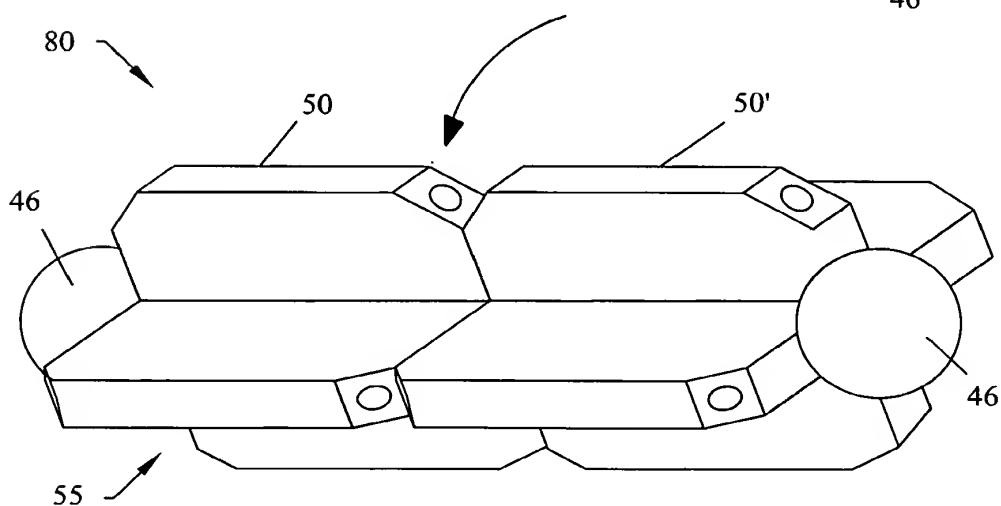


FIG. 8

DECLARATION AND POWER OF ATTORNEY

(Patent, Design or C-I-P Application)

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are stated below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **MAGNETIC CONSTRUCTION MODULES FOR CREATING THREE-DIMENSIONAL ASSEMBLIES** the specification of which

is attached hereto
 was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-entitled specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

COUNTRY	APPLICATION NO.	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. 119
			YES <input type="checkbox"/> NO <input type="checkbox"/>
			YES <input type="checkbox"/> NO <input type="checkbox"/>

LISTING OF FOREIGN APPLICATIONS CONTINUED ON PAGE 2 HEREOF: YES NO

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

60/536,866 January 16, 2004
 (Application Serial No.) (Filing Date)

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or PCT International application in the manner provided by the first page of 35 U.S.C. §112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.) (Filing Date) (Status: patented, pending abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

RALPH W. SELITTO, JR., Reg. No. 26,996; PAUL F. SWIFT, Reg. No. 34,938; JOHN K. KIM, Reg. No. 37,002; SANJIV M. CHOKSHI, Reg. No. 44,080; JOSEPH AGOSTINO, Reg. No. 51,191; WILLIAM SMITH, Reg. No. 46,459; BASAM E. NABULSI, Reg. No. 31,645; MARK D. GIARRATANA, Reg. No. 32,615; ERIC E. GRONDAHL, Reg. No. 46,741; MARK STEINBERG, Reg. No. 40,829; GAVIN R. CUNNINGHAM, Reg. No. 46,122; BRYAN ZERHUSEN, Reg. No. 54,566; RAYMOND G. CAPPO, Reg. No. 53,836; DAVID BARNES, Reg. No. 47,407; ERIC E. BLEICH, Reg. No. 47,430; GRAHAM C. ALIG, Reg. No. 55,768; ROBERT A. MIGLIORINI, Reg. No. 50,262; and SETH M. WILSON, Reg. 45,228.	
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SEND CORRESPONDENCE TO:	Ralph W. Selitto, Jr. McCarter & English, LLP Four Gateway Center 100 Mulberry Street Newark, NJ 07102	DIRECT TELEPHONE <u>Ralph W. Selitto, Jr.</u> CALLS TO: <u>(973) 622-4444, ext. 4507</u>
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LISTING OF INVENTORS CONTINUED ON PAGE 2 HEREOF: YES NO

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 101 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor #1	Signature of Inventor #2
Date: _____	Date: _____

SEE PAGE 2 ATTACHED, SIGNED AND MADE A PART HEREOF: YES NO

DECLARATION AND POWER OF ATTORNEY

Page 2

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Residence & Citizenship	City:	State or Foreign Country:	Country of Citizenship:
Post Office Address	Post Office Address:	City:	State or Country and Zip Code:

LISTING OF INVENTORS CONTINUED ON PAGE 3 HEREOF: YES NO

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor #3	Signature of Inventor #4	Signature of Inventor #5
Date:	Date:	Date:

SEE PAGE 3 ATTACHED, SIGNED AND MADE A PART HEREOF: YES NO

NWK2: 1208864.01